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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/754,612	01/12/2004	Young-Ho Kim	0630-1918P	8543
2292	7590	11/27/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			RIGGLEMAN, JASON PAUL	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/754,612

Applicant(s)

KIM ET AL.

Examiner

Jason P. Riggleman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4/19/2006, 6/7/2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show vital details of the gear reduction mechanism: Figs. 3, 5, 7, and 9 show a cross-section perspective; however, the sun and planetary gear teeth are depicted for a supposed cross-section of the gear. The number of planetary gears and their connection to the secondary shaft is not obvious and is confusing.
2. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and

informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "50". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The abstract of the disclosure is objected to because it does not encompass the scope of the invention. The abstract is identical to claim 1 – which comprises only a small portion of the claimed subject matter. Correction is required. See MPEP § 608.01(b).

5. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly

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those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3 and 5-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bae et al. (US Patent No. 6176108) in view of Dausch et al. (US Patent No. 5669095) and Koshiga et al. (European Patent Application Publication EP 0949374A1).

9. Bae et al. teaches a washing machine comprising an outer tub 101, inner tub 2, induction motor 20, which has a rotor 22 and stator 21. It is known that rotors have a certain air gap from an outer circumference of a stator and generate a rotational force

by mutual electromagnetic operation with the stator. A washing machine casing is an inherent feature of a washing machine. The rotation transmission includes a sun gear 31a which engages planetary gears 31b. The outer circumference of the planetary gears are meshed with an inner circumference of the ring gear 31c. The sun gear is installed at an upper portion of the drive shaft 23, which is connected to the induction motor 20. The rotation transmission transmits a rotational force of the induction motor to the inner tub 2. A rotary shaft 133 is connected to the ring gear 31c and fixed to the inner tub to transmit the rotational force of the ring to the inner tub 2. The inner tub shaft 145, and inner tub 2, do not rotate during the washing operation; therefore, they are decelerated from the output shaft speed of the induction motor during the washing operation (Column 6, Lines 3-18). The rotational speed of the shaft of the induction motor and the inner tub are the same in the dehydrating operation since the clutch engages; therefore, the inner tub and shaft of the induction motor are directly coupled during this operation (Column 6, Lines 51-60). A clutching device 160 is present for selectively transmitting the rotational force of the induction motor only to the sun gear or to the sun gear and the ring gear simultaneously. The upper clutch 161 (second spline shaft) is engaged at a lower portion of the gear case 141 by a spline capable of moving up and down. The lower clutch 163 (first spline shaft) is fixed on the driving shaft at the upper portion of an upper motor housing 12, Fig. 4. The upper clutch 163 moves down to engage the lower clutch. A clutch (clutch lever) is movably disposed between the two spline shafts and can selectively engage either or both. A clutch-driving unit is present for moving the clutch lever gear 168 (Column 6, Lines 36-38). A coil spring 57 is

present for returning the clutch lever to its original position. The inner tub is rotated coaxially with rotational center of the rotor (Fig. 1). A planetary gear carrier 135 turns a shaft 133. A speed-adjusting device (brake band 173) is taught for controlling the rotational speed of the ring gear. The brake band 173 is wound around the ring gear and has a band-driving unit which controls the tension of the band. A brake lever 175 provides tension. A spring 179 returns the band to its initial state (Column 6, Lines 55-61).

10. In the alternative, in regards to claim 1, Bae et al. does not explicitly teach an induction motor; however, many people such as Dausch et al. (US Patent No. 5669095) teach the use of an induction motor 40 for driving a washing machine. Dausch et al. teaches that AC induction motors are commonly used in mass-manufactured household appliances as such motors are comparatively simple, reliable, robust, and effectively provide the motive power for the various functions of a washing machine (Column 4, Lines 39-44). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bae et al. with Dausch et al. to create a washing machine which has a simple, reliable, and robust driving motor.

11. In the alternative, in regards to claim 5, Bae et al. does not explicitly teach a specific air gap from an outer circumference of the stator; however, Koshiga et al. teaches, paragraph [0025], the use of a rotor 45a having a magnet on its outer circumference for apply a magnetic field and a stator 45b disposed at the outer circumferential side of the magnet for applying a magnetic field to the rotor. A gap S is provided between the stator 45b and the rotor 45a. It would have been obvious to one

of ordinary skill in the art at the time of the invention to modify Bae et al. with Koshiga et al. to create a washing machine which has a rotor and stator function effectively.

12. Claims 13, and 19-20 are rejected under 35 U.S.C. 102(b) as anticipated by Lim et al. (US Patent Application Publication No. 2002/0166349) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lim et al. (US Patent Application Publication No. 2002/0166349) in view of Dausch et al. (US Patent No. 5669095).

13. Lim et al. teaches a washing machine with a casing 11, and inner tub 15 which is rotatably installed inside an outer tub 13. A pulsator 17 is installed inside the inner tub for rotation inside the tub. A dual shaft structure is present whereby a pulsator shaft 18 is contained inside the tub shaft 16. The tub shaft 16 is a hollow cylindrical shape to house the pulsator shaft 18 inside. The inner tub 15 can be rotated in one direction by a wash water current formed by the pulsator 17, whereby the washing can be performed by reversely rotating the pulsator 17 in order to rotate the inner tub 15 and the pulsator 17 in different directions to each other, paragraph [0096]. An induction motor 20 appears to be utilized in washing the machine. A stator 21 has a ring shape and is fixedly connected to the lower bearing housing 32. A rotor 23 has a cylindrical shape to enclose the stator 21 with a certain air gap between, paragraph [0070]. The inner tub 15 and pulsator 17 are rotated continually in one direction by increasing a rotational velocity of the rotor 23 of the driving motor 20 at a certain level then the centrifugal dehydration operation is performed, paragraph [0089]. The inner tub and the pulsator are rotated co-axially with a rotational center of the rotor, Fig. 2.

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14. In the alternative, in regards to claim 13, Lim et al. (US Patent Application Publication No. 2002/0166349) does not explicitly teach an induction motor; however, many people such as Dausch et al. (US Patent No. 5669095) teach the use of an induction motor 40 for driving a washing machine. Dausch et al. teaches that AC induction motors are commonly used in mass-manufactured household appliances as such motors are comparatively simple, reliable, robust, and effectively provide the motive power for the various functions of a washing machine (Column 4, Lines 39-44). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lim et al. with Dausch et al. to create a washing machine which has a simple, reliable, and robust driving motor.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bae et al. (US Patent No. 6176108) as applied to claims 1-3 above, and further in view of Brien (US Patent No. 5209085).

17. People of ordinary skill in the art are aware that solenoids can be used to actuate/deactuate common devices. Bae et al. does not teach a solenoid for moving the clutch; however, Brien teaches the use of a solenoid 25 which controls the clutch. It would have been obvious to one of ordinary skill in the art at the time of the invention to

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modify Bae et al. with Brien to create a washing machine which utilizes a solenoid to create an electronically controllable clutching system which reduces both the number and wear of mechanical gear alternatives, Brien (Column 1, Lines 36-44).

18. Claim 14-15 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent Application Publication No. 2002/0166349) as applied to claim 13 above, and further in view of Bae et al. (US Patent No. 6176108).

19. Lim et al. does not teach a gear-reduction system that comprises planetary/sun/ring gears or a ring gear speed-adjusting device; however Bae et al. teaches such components. The rotation transmission includes a sun gear 31a which engages planetary gears 31b. The outer circumference of the planetary gears is meshed with an inner circumference of the ring gear 31c. The sun gear is installed at an upper portion of the drive shaft 23 which is connected to the induction motor 20. The rotation transmission transmits a rotational force of the induction motor to the inner tub. A rotary shaft 133 is connected to the exterior of the ring gear and fixed to the inner tub to transmit the rotational force of the ring gear to the inner tub. A clutching device 160 is present for selectively transmitting the rotational force of the induction motor only to the sun gear or to the sun gear and the ring gear simultaneously. The upper clutch 161 (second spline shaft) is engaged at a lower portion of the gear case 141 by a spline capable of moving up and down. The lower clutch 163 (first spline shaft) is fixed on the driving shaft at the upper portion of an upper motor housing 12, Fig. 4. The upper clutch 163 moves down to engage the lower clutch. A clutch (clutch lever) is movably disposed between the two spline shafts and can selectively engage either or both. A

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clutch-driving unit is present for moving the clutch lever gear 168 (Column 6, Lines 36-38). A coil spring 57 is present for returning the clutch lever to its original position. The inner tub is rotated co-axially with rotational center of the rotor (Fig. 1). A planetary gear carrier 135 turns a shaft 133. A speed-adjusting device (brake band 173) is taught for controlling the rotational speed of the ring gear. The brake band 173 is wound around the ring gear and has a band-driving unit which controls the tension of the band. A brake lever 175 provides tension. A spring 179 returns the band to its initial state (Column 6, Lines 55-61). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lim et al. with Bae et al. to create a washing machine which has a transmission means to control the torque and speed of the drive shaft and to have a clutching means which can do so in an unbalanced state, Bae et al. (Column 3, Lines 13-22).

20. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent Application Publication No. 2002/0166349) and Bae et al. (US Patent No. 6176108), as applied to claim 13-15 above, and further in view of Brien (US Patent No. 5209085).

21. People of ordinary skill in the art are aware that solenoids can be used to actuate/deactuate common devices. Bae et al. and Lim et al. do not teach a solenoid for moving the clutch; however, Brien teaches the use of a solenoid 25 which controls the clutch. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bae et al. and Lim et al. with Brien to create a washing machine

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which utilizes a solenoid to create an electronically controllable clutching system which reduces mechanical gear wear, Brien (Column 1, Lines 36-44).

22.

Allowable Subject Matter

23. Claims 7-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lee et al. (US Patent No. 6665899), which discloses an indirect, drive washing machine which can selectively control the rotation of the agitator or tub.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason P. Riggleman whose telephone number is 571-272-5935. The examiner can normally be reached on M-F, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

MICHAEL BARR
SUPERVISORY PATENT EXAMINER

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason P Riggleman
Examiner
Art Unit 1746

JPR

A handwritten signature in black ink, appearing to read 'Michael Barr', with a stylized flourish at the end.

MICHAEL BARR
SUPERVISORY PATENT EXAMINER